Designed and Made for Australian Conditions

Solar Controller / Battery Charger
Input: DC12V Solar Panel (Max. 23V)
Output: DC12V 10A
Model Number: OC-SR10

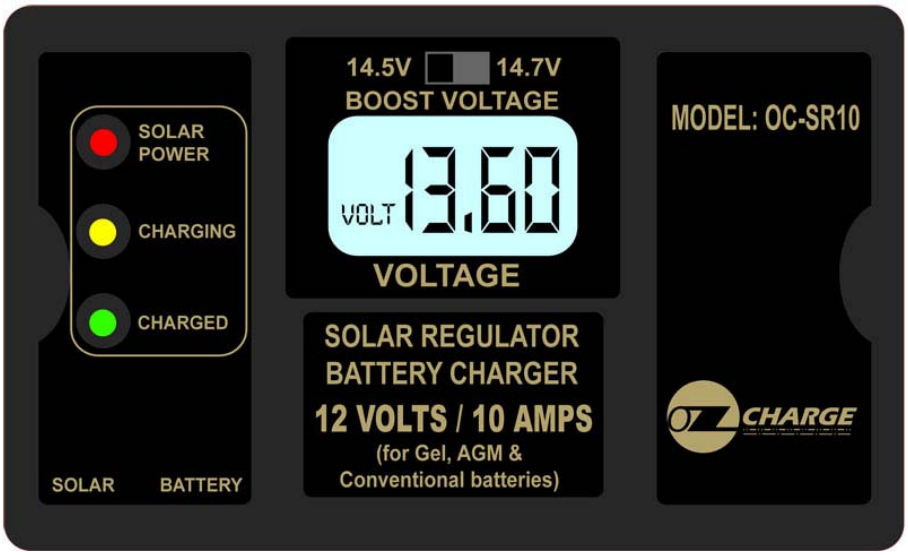
User's Manual and Important Safety Information

Congratulations on purchasing an OzCharge Solar Controller Regulator.
OzCharge Controllers are comprised of the latest technology and suited to Aussie conditions:

Please carefully read these instructions before installing and using this device.

FEATURES

- Suits Gel, AGM, Conventional lead-acid and Calcium Batteries.
- Built in regulator to prevent your battery from being overcharged. Overcharging occurs when the charge voltage is unregulated. This can result in premature battery failure.
- Can be connected to the battery permanently to keep the battery fully charged by using a process called "floating". This means the controller will stop charging when the battery is full and will automatically start charging the battery as required. This process will also reduce water loss and help prevent the battery from 'drying out'.
- Protects your battery from discharge at night. Under low light or no light conditions the solar panel voltage could be less than the battery voltage. The unit contains a special circuit which prevents current flowing back from the battery and into the solar panel.
- Coloured LED's to indicate the operational status.
- Digital LCD to indicate battery voltage.
- Surface Mount or Flush Panel Mount options.



For use with 12 Volt Solar Panels Only.
Suitable for Solar Panels up to 170 Watts.

WARNING – IMPORTANT PLEASE READ…

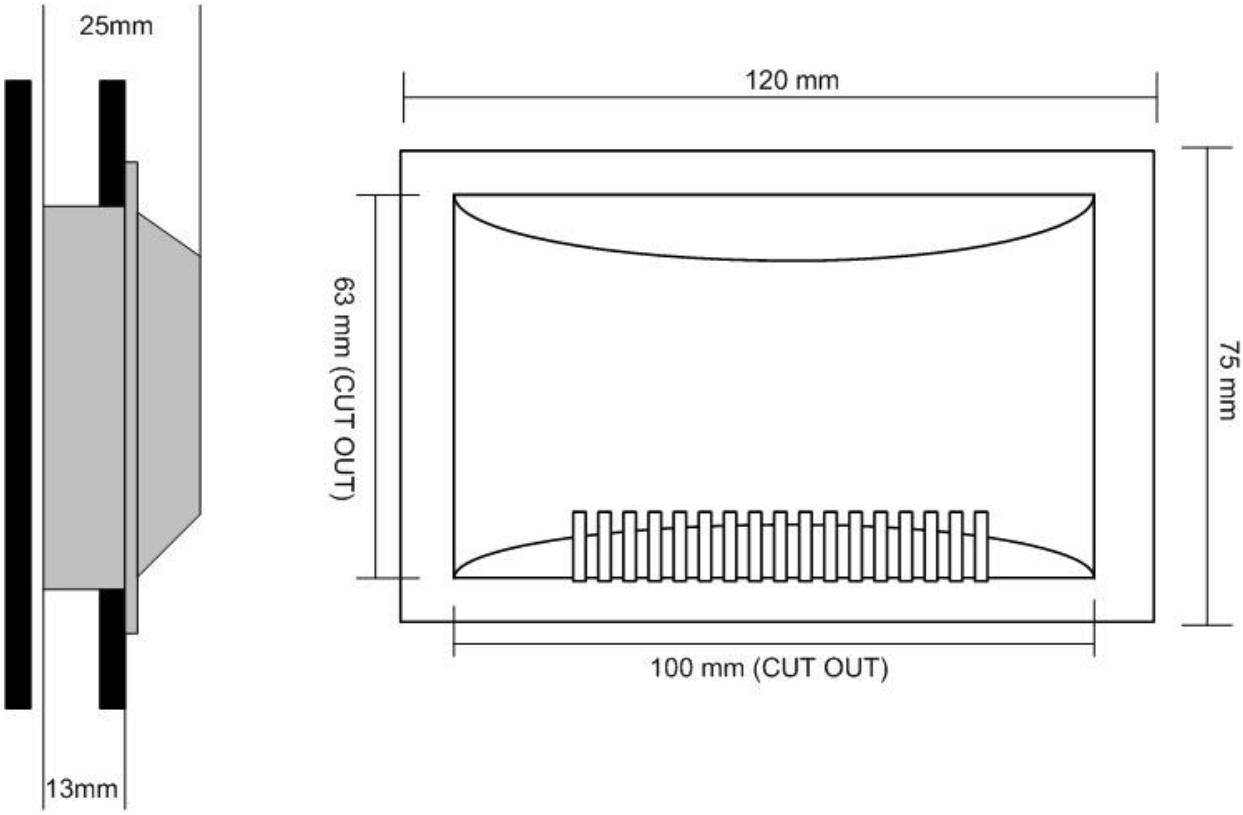
- This device is to be used with 12V (nominal) Solar Panels only and the Panel(s) should not exceed 170W (10A) (total) limit.
- This charger is designed for indoor use only and should never be exposed to rain.
- Do not disassemble the charger. Take to a qualified person if the unit requires repairing.
- Lead acid batteries can be dangerous. Ensure no sparks or flames are present when working near batteries.
- Eye protection should always be used. Never short circuit the battery
- Given sufficient light solar panels always generate energy even when they are disconnected. Accidental 'shorting' of the terminals or wiring can result in sparks causing personal injury or a fire hazard. We recommend that you cover up the panel(s) with some sort of soft cloth so you can block all incoming light during the installation. This will ensure that no damage is caused to the Solar Panel or Battery if the wires are accidentally short circuited.
- Always install a battery fuse on each circuit including the solar controller
- Do not reverse connect the wires to the solar panel or battery.

MOUNTING THE DEVICE

The Solar Controller has two mounting options.

1. Surface mount:
The quickest and easiest way to mount the unit is to use the two plastic spacers and self tapping screws supplied and mount the unit to a flat surface,

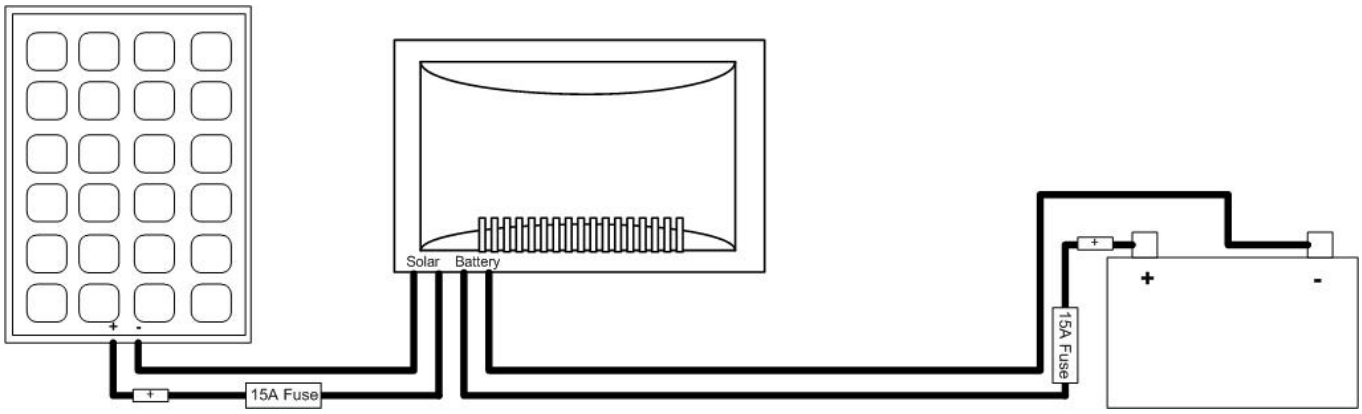
2. Flush (panel) mount:
Before deciding to use this mounting method, please ensure there is sufficient depth behind the controller or in the cavity. (Refer to Diagram below)
Using the dimensions shown in the following diagram, mark a 63mm x 100mm rectangle where you wish to mount the controller and cut-out the panel opening then use the two self- tapping screws supplied to secure the unit.



Note: You can use the card insert from the packaging as a guide for the CUT OUT.

WIRING CONNECTIONS

To protect the Battery and the Solar Panel, we strongly recommend that you place a 15A inline fuse on the positive wire on both the “Solar” and “Battery” Circuits. (As close to the Battery / Panel as possible)
The leads which exit the Solar Controller are clearly marked ‘Solar’ and ‘Battery’.
Each of these leads is twin core black cable, one power (12V) and one earth (GND) wire for each circuit.
Refer to the marking on the leads for the Power +VE (12V) wires.



1. Connect the “Solar” lead to the Solar Panel like shown in the diagram above.
The wire marked “+VE” connects to the positive (+) solar terminal of the solar panel, the other wire connects to the negative (-) solar terminal.
2. Connect the “Battery” lead to the battery like shown in the diagram above.
The wire marked “+VE” connects to the positive (+) battery terminal, the other wire to the negative (-) battery terminal.

Extending the leads:
If you need to extend any of the cables, please refer below for the type of cable which should be used.
1. Up to 3m extension, use 4mm (1.85mm²) automotive cable.
2. Up to 6m extension, use 6mm (4.58mm²) automotive cable.

OPERATION – L.E.D INDICATORS

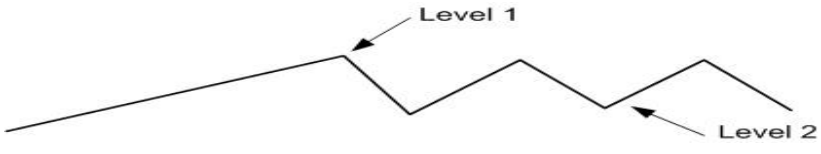
When the connections are completed, the Solar Controller will start charging the battery automatically.
Please check your battery manufacturer’s specifications to ensure the Boost Voltage switch is on the appropriate setting. **Boost Voltage** – Is the maximum Voltage used to charge a battery.
Typically for Gel and AGM batteries you would need to select 14.5V.
For all other Conventional and Calcium batteries, you would need to select 14.7V.

Three LED’s indicate the operational status of the controller and the LCD shows the battery Voltage.

	Red	Yellow	Green
Solar Power Present – No Battery Connected	ON	OFF	OFF
Bulk Charging Mode	ON	ON	OFF
Float / Maintaining Mode	ON	OFF	ON
Battery Polarity Reversed – Check Battery Connection	ON	OFF	OFF

Red L.E.D - indicates that voltage is available from the solar panel.
Yellow L.E.D - indicates that the battery is being charged.
Green L.E.D - indicates that the battery is fully charged.
A fully charged battery has a voltage of more than 13.4 Volts.
A voltage less than 11.5 Volts indicates that the battery is discharged and needs re-charging.

CHARGING CURVE (VOLTAGE)



SPECIFICATIONS

1	**Electrical Parameters**			
1-1	Normal input solar cell array voltage :	16.5	Typ.	Vdc
1-2	Max. solar cell array voltage (when output has no load)	23	Max.	Vdc
1-3	Current Consumption when connected 15V Array (battery not present) :	30	Max.	mAdc
1-4	Current Consumption when connected 12V battery (Array not present) :	15	Max.	mAdc
2	**Output Control & metering Characteristics**			
2-1	Normal Start up Charging Condition :			
2-1-1	Charging start when Battery voltage not less than	5.0	+/- 1	Vdc
2-1-2	Input solar cell array voltage	16.5	Typ.	Vdc
2-2	Charging current (continuous) :	10		Adc
2-3	Charging current (Peak), Max (30 seconds)	12		Adc
2-4	Level 1 Cut-out Control Voltage:(for GEL Battery)	14.5	+/- 0.3	Vdc
2-5	Level 1 Cut-out Control Voltage: (for AGM/Conventional Flooded Battery)	14.7	+/- 0.3	Vdc
2-6	Level 2 Cut-in Control Voltage:(for GEL Battery)	13.6	+/- 0.3	Vdc
2-7	Level 2 Cut-in Control Voltage:(for AGM/Conventional Flooded Battery)	13.8	+/- 0.3	Vdc
2-8	Minimum LCD Display Voltage *	6.0	+/- 0.3	Vdc
2-9	Maximum LCD Display Voltage *	19.0	+/- 0.3	Vdc
Note : * The voltage range may be out of these ranges when input current is different.				
3	**Protection**			
3-1-1	Over temperature protection active at above *		85	^{o}C
3-1-2	The charger will resume the charging at about		75	^{o}C
3-2	Battery Reversed Protection			
Note : * When over temperature protection is activated, the Yellow LED will be "OFF".				
4	**Electrical Parts**			
4-1	Input Lead (Array) specifications :	SPT-1 18AWG x 2C 105*C, External length : 915mm		
4-2	Output Lead (Battery) specifications :	SPT-1 18AWG x 2C 105*C, External length : 915mm (Two terminals - 10mm ring terminal for Positive, 8mm ring terminal for Negative)		
5	**Physical Parameters**			
5-1	Panel material :	Plastic, Standard ABS		
5-2	Panel Dimension :	120 (W) x 75 (H) mm		
5-3	Panel Cut Out Size:	100 (W) x 63 (H) mm		
5-4	Overall Depth :	approx. 25 mm		
5-5	Net weight :	approx. 200g		
6	**Environmental Characteristics**			
6-1	Operating temperature :	-5 to 50 ^{o}C		
6-2	Storage temperature :	-10 to 70 ^{o}C		
6-3	Operating Humidity range :	0 to 80% RH		

2 YEAR MANUFACTURER WARRANTY

Zylux Distribution Pty. Ltd. (OzCharge) warrants to the Customer that this product is substantially free from defects in materials and workmanship under normal use for a period of 2 Years from the Date of Purchase.
Please ensure you keep a copy of your receipt on file as this will be required for proof of purchase and to validate your warranty.

Obtaining Warranty Service

Within the warranty period, the Customer must contact the authorised supplier / retailer where the product was purchased or alternatively you can contact the OzCharge service centre through one of the following methods:
Hotline: (03) 9482 2203
Website: www.ozcharge.com.au
If the Authorised Supplier and / or OzCharge service centre concludes that while under normal use, a product failure or malfunction occurred during the warranty period and was caused by a defect in material or workmanship (see Exclusions), the Customer will be asked to ship to the nearest service point. The product must be packaged appropriately for safe shipment. To prove that the product is under warranty, the customer should enclose a copy of their receipt for proof of purchase. It is recommended that returned products be sent by registered mail as Zylux Distribution Pty Ptd. (OzCharge) accepts no responsibility / liability for goods lost or damaged in transit. Return Shipping costs to be incurred by the Customer.

Exclusions

If upon receiving a product for repair and if testing and examining the product has disclosed that the alleged defect or malfunction in the product does not exist or was caused by the Customer or any third persons misuse, physical abuse, water damage, unauthorised attempts to open, repair or modify the product or improper installation, this will not be covered under this warranty.

This Warranty is void if:

1. The product has been tampered or repaired by unauthorised personnel.
2. The warranty seal is broken or altered.
3. The warranty period has expired.